

EXHIBIT R

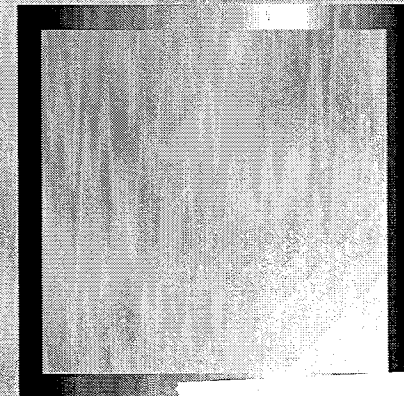
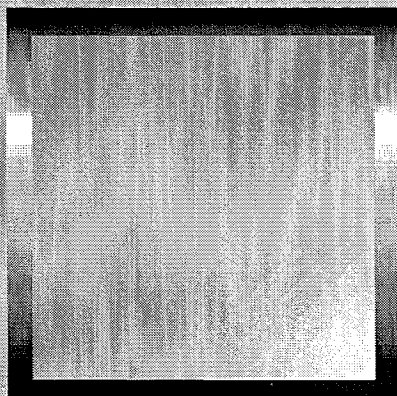
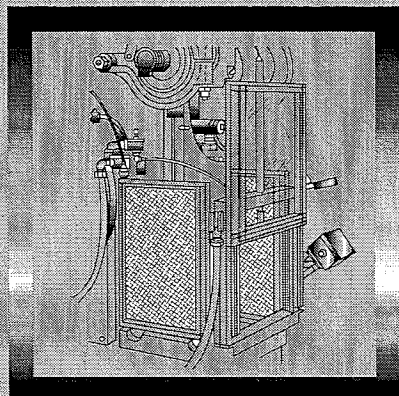
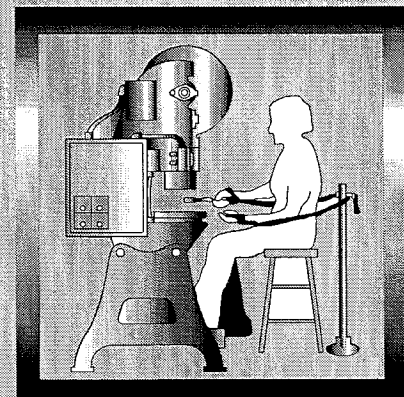
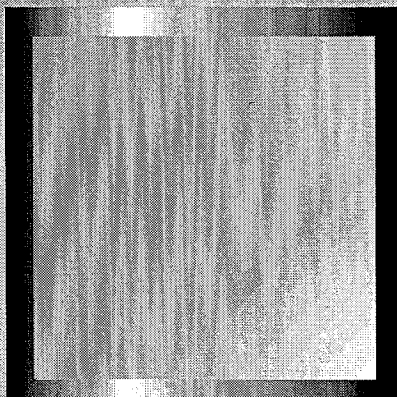
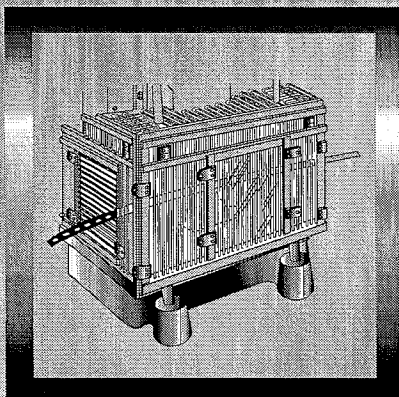
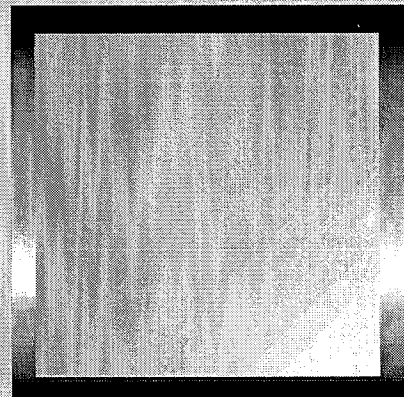
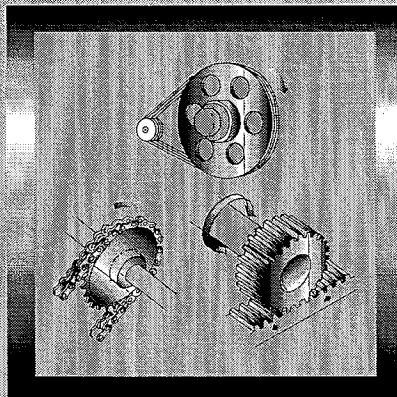
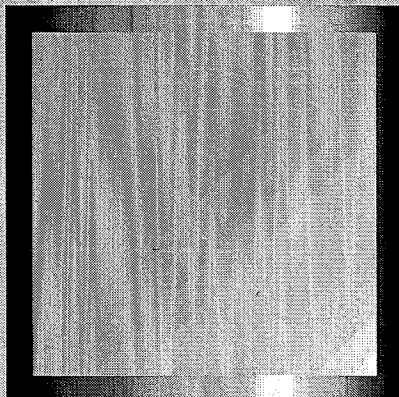


Safeguarding Equipment and Protecting Workers from Amputations

Small Business Safety and Health Management Series

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3170
2001



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14 Controlling Amputation Hazards

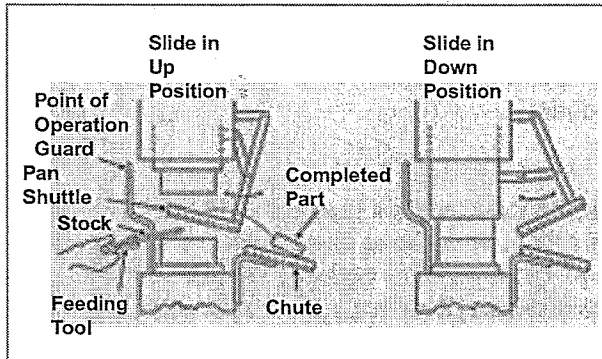


Figure 20. Shuttle Ejection Mechanism

Can Workers Use Hand-Feeding Tools?

Operators can use tools to feed work pieces into equipment to keep their hands away from the point of operation, but this should be done only in conjunction with the guards and devices described previously. Using hand tools requires close supervision to ensure that the operator does not bypass their use to increase production. Tools should be stored near the operation to encourage their use. To prevent repetitive trauma disorders, hand-feeding tools should be ergonomically designed for the specific task being performed. (Figure 21 shows typical hand-feeding tools.)

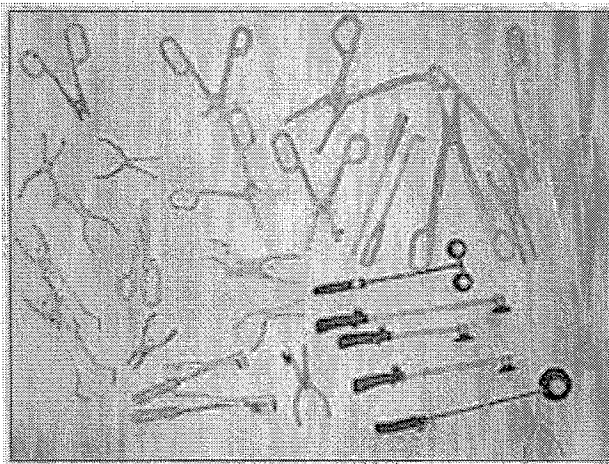


Figure 21. Typical Hand Feeding Tools

Are Foot Controls Another Option?

Foot controls are not safeguards because they do not keep the operator's hands out of the danger area. If you use them, they will need some type of guard or device, such as barriers or pullouts with interlocks capable of controlling the start up of the machine cycle. Using foot controls may increase productivity, but the freedom of hand movement allowed while the machine is operating increases the risk of a point of operation injury. Foot controls must be guarded to prevent accidental activation by another worker or by falling material and not allow continuous cycling. They work best when the operator is in a sitting position. Always avoid the hazard of riding the pedal (keeping the foot on the pedal while not actively depressing it.) (See properly guarded and positioned foot control in Figure 22.)

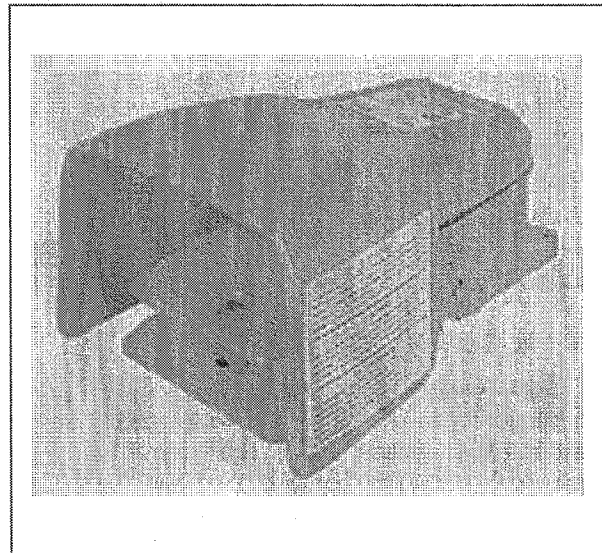


Figure 22. Properly Guarded Foot Control

What About Controls for Machines with Clutches?

Certain machines can be categorized based on the type of clutch they use—full-revolution or part-revolution. Differing modes of operation for these two clutches determine the type of guarding that can be used.